

Final Project

Due Date: 12/04/2018 at 11:55 PM

Project Goal: Develop an information resource management system that uses the various concepts you have learned over the course the term. Your final deliverable can be a system to do some type of useful tasks that serve information resource management. It can be a retail management system that keeps track of the daily delivery orders by customers; or a clinic reservation system that bookkeeps patient information and manages bookings. These are ideas to help you find a project, not to restrict you; in other words, if you want to do something substantial and interesting (and has the required features described below), but it does not strictly fall into one of these categories, you may still do that.

Your project must have each of the following features:

- 1) It must use a **relational database** (e.g., MS Access, MS SQL, MySQL, etc.).
- 2) It must use either a server-side desktop-based **programming language** (e.g., C#, Java, Scala, Python, etc.) or web-based programming language (e.g., ASP.NET, PHP, etc.) both with GUI capability.
- 3) It must involve **database connection** between the application and database to send/receive commands to/from the database server.
- 4) It must include a technical report which describes the problem you are trying to solve by building this system. The report should include the following sections:
 - I. *Abstract:* This section summarizes, usually in one paragraph of 300 words or less, the major aspects of the entire project in a prescribed sequence. It should include the overall purpose of the project and the research problem you investigated; the basic design of the study; and major findings or trends found as a result of your analysis.
 - II. *Introduction:* This section establishes the scope, context, and significance of the research work being conducted by summarizing current understanding and background information about the project, stating the purpose of the work in the form of the research problem.
 - III. *Design:* This section provides the methods and procedures used in the project. This includes the database design (e.g., ERD) and application programming paradigm (e.g., class diagram).
 - IV. *Implementation:* This section describes the techniques that underlie your implementation such as the programming languages used to develop the application, DBMS, etc.
 - V. *User Manual:* This section highlights interesting aspects of your project plus instructions on how to use/play the project.
 - VI. *Conclusions:* This section briefly summaries the report, and provides your interpretations and conclusions.

NOTE: If you do not hand in the technical report, you will receive 0 in the project. Please do not make me apply this rule – hand in the report, please!

Team formation: Each team will have 3 or 4 group members. It is not recommended to work individually due to the extensive work required from each member of the team. If you can't find a team, please contact the professor **no later than October 30th, 2018**. Teams are expected to collaborate and communicate with each other outside of class time. Teams may wish to meet in person or to discuss details via email.

Marking: This project is worth 25 marks. You should plan to invest a commensurate amount of time and effort in completing it. Your submission will be graded not just on its functionality, but also on the novelty of the idea and the quality of code, appropriate commenting, etc. Because of the relatively open-ended nature of this project, there is no fine-grained breakup of the marks for your code, except that you will lose significant marks if your project does not include the required features as described above. To receive full marks on your report, you should have excellent internal documentation (i.e., appropriate comments, but also the choice of variable names), as well as excellent external report.

Project Presentation: Each team is required to present their work in front of the class in the last lecture (i.e., December 4th, 2018). Each team should prepare a PowerPoint presentation to show their work, followed by a quick demo of the application. During the talk, each team member is expected to take a role in the presentation.

Handing in your project: Upload your entire project to eCourse in a **zip file**. **Please include a readme file** will have: (1) the team members' name and student ID; and (2) instructions on how to install/run the application and database.

Project Possibility

Bakery Resource Management System

Here is a specific project idea for students who would rather not come up with their own project.

Preview: You are the manager of the bakery, and you need to keep track of the daily delivery orders by customers. At the end of the day, you need to run a report on how many bakery items the chefs need to bake for the next morning delivery. You also need to create a daily report of the billing amount for each of the delivery orders.

Deliverables:

- **Database:** You will need to create a Microsoft Access Database which has a number of tables, relationships, and queries. Your queries must each use of at least two tables, as described below:
 1. You want to find out which inventory items are least popular so that you can possibly create a marketing campaign for those items or consider discontinuing the item.
 2. Find out which items are yielding the most revenue per day. These items are the most popular in the bakery, and you are considering a coupon offer to attract new customers.
 3. You are monitoring your outside supplier inventory. The bakery loses money on inventory that doesn't sell; therefore, you want to create a query to show which items from your supplier are selling least.
 4. You want to know which items are baked in the store and are selling least. You need to make a decision to either discontinue or enter a promotion for increasing awareness for your customers.

- **Application:** It is recommended to use C# desktop-based programming language. Your application should have three types of users: customers, suppliers and clerks. The application should have the following modules:
 1. A form to add/edit/delete clerks
 2. A form to add/edit/delete suppliers
 3. A form to insert a new bakery item. Each item has a name, description, price, expiry date, etc.
 4. A form to display all current items in the bakery. This form has a search option that enables customers and clerks to search for items by name, price, expiry date, etc. This form also enables **clerks only** to edit/delete items.
 5. Four reports that use the above four queries.
 6. Any extra form you think it is necessary for improving the functionality of your system.
 7. Login form for clerks only.